Economic Demand Response Offer Administration in eMKT

PJM State & Member Training Dept.
Portfolios

Load Response Portfolio Overview

Load Response portfolios are required for economic and ancillary services participation when using eMKT.

A load response portfolio is a collection of load response registrations that are defined by the user. The user names each portfolio when it is created. There is currently no limit to the number of portfolios a user can create; nor is there a limit to the number of load response resources that can be "assigned" to a portfolio. The same load response resource can be assigned to more than one portfolio.

NOTE: All Load Response registrations must first be registered and approved in eLRS before participating in eMKT for both Economic Energy and Ancillary Services.
Load Response Portfolios and Web Services

Load Response portfolios are NOT required for economic and ancillary services participation when using web services. However, to review data in eMKT that was submitted using web services requires that the DSR registration be in a portfolio.
Create New Load Response Portfolios

Creating a new Portfolio:
1. Press the Create Portfolio button
Once the Create Portfolio button is pressed:

2. Select the Load Response radio button
3. Enter a name for the new portfolio
4. Portfolio is created once a registration is added
Adding a Resource to a new or existing Portfolio:

1. Selecting the Add button will add a row to the Portfolio Manager
   a) Load Response must be selected as the filter

2. Begin typing the registration name in the Location Name box.
   a) Names for Registrations begin with an R
   b) Names for Dispatch Groups begin with a DG

3. A filtered list of registrations will appear
   a) Click on the appropriate registration name
   b) Press the Submit button to add the registration to the portfolio
      — The portfolio is created after the first registration is added
Deleting a Resource from a Portfolio

1. Select the check box to the left of the ID
2. Press the Delete button to delete the registration from the portfolio

Note: Terminated Registrations and Dispatch Groups are not automatically deleted from portfolio. The CSP must delete terminated Registrations and Dispatch Groups from the portfolio.
Delete a Portfolio

Deleting a Portfolio:

1. Select the portfolio to be deleted
2. Press the Delete Portfolio button
DSR Offers in eMKT
Economic Participation

• All Economic and Ancillary Service participation for Demand Side Response (DSR) requires submitting offers using eMKT. Economic DSR participation is defined as:
  1. Clearing in the Day-Ahead Market
  2. Dispatched by PJM in the Real-Time Market

• All registrations and Dispatch Groups will be eligible to set LMP
DSR Offer Curves Overview:

Offer Curves are required for:

1) Day-Ahead Market clearing
2) PJM Dispatch in the Real-Time Market

- Offer curves consist of MW/price pair segments. Up to 10 segments can be defined for each offer curve.
- Each registration can have up to two sets of offer curves, but only one offer curve can be made available on a daily basis.
- Market Type participation (Day Ahead, Balancing or Both) is associated with a schedule that can be changed daily by the CSP

Off curves are required for Energy Market participation

Offer Curves are not required for sole participation as a Synchronized Reserve Market resource (no energy settlement)
Example of Incremental Offer (Slope vs. Block)

- eMKT allows for the selection of either Slope or Block
  - Up to ten (10) price points can be defined
  - Resource will be cleared / dispatched economically in accordance with the offer curve
Offer Curve Manager - Schedules

Offer Curve Manager:

- Schedules are the names assigned to the offer curves
  - The MW/price point pairs of the offer curve are entered on the Offer & Parameters tab.
- Add - Allows the CSP to create a schedule (name of Offer Curves)
  - Up to two schedules can be created
  - Schedule Name – Name used to reference Offer Curve
  - Schedule Description – Text description of the schedule
  - Schedule Type – 1 or 2 (default is 1)
- Delete – Delete a schedule
- Submit – Submit the results of adding or deleting a schedule
- Add, Delete or Submit is not permitted when market is closed
DSR Parameters and Offer Curve

DSR Parameters:

- Parameters associated with load reductions are entered in the DSR Detail page:
  -Shutdown Costs, Min Down Time, Notification Time
  -If this registration is dispatched, then the minimum downtime will be respected. The hourly MW will also be respected
- Impact Operating Reserve credits
-Shutdown Costs are only editable prior to each period
  -Per. 1 = April 1 – September 30
  -Per. 2 = October 1 – March 31
-Parameters are effective beginning the date shown

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Name</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Per. 1 Shutdown Cost($)</td>
<td>(null)</td>
<td>Per. 2 Shutdown Cost($)</td>
<td>0.00</td>
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<tr>
<td>Minimum Downtime Limit</td>
<td>1.00</td>
<td>Notification Time(Hour)</td>
<td>1.00</td>
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DSR Parameters and Offer Curve

Offer Curve:
- Schedule is the name of the Offer Curve
- Up to 10 pairs of MW and pricing points can be created or modified for each price schedule
- The Offer Slope selection can be used to calculate the schedule’s offer price when dispatched between MW segments
- Cannot be changed for today or the next day when the market is closed
- Offer Curve data is effective beginning the date shown

<table>
<thead>
<tr>
<th>MW</th>
<th>Price</th>
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<tr>
<td>16.0</td>
<td>25.00</td>
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Schedule Selection and Hourly Updates

Market Type:

- Allows the participant to select the following Market Types:
  1. DayAhead
  2. Balancing
  3. Both = DayAhead and Balancing

- Market Types can be selected for each schedule

- Cannot be changed for today or the next day when the market is closed

### Table: Hourly Updates for 02/01/2012

<table>
<thead>
<tr>
<th>Hour Ending</th>
<th>Economic Min. MW</th>
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<tbody>
<tr>
<td>01</td>
<td>0.4</td>
</tr>
<tr>
<td>02</td>
<td>0.4</td>
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<tr>
<td>03</td>
<td>0.4</td>
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<td>13</td>
<td>0.4</td>
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<tr>
<td>14</td>
<td>0.4</td>
</tr>
</tbody>
</table>
**Market Type**

**DR bids for each Market Type will be handled as follows:**

1. **Day-Ahead Market** – If hour clears in DA market then DR should respond with associated MWs. PJM will not dispatch in RT for hours that clear in DA market
2. **Balancing Market** – DR should follow RT dispatch signal
3. **Both**
   - If hour clears in DA market then DR should respond with associated MWs. PJM will not dispatch in RT for hours that clear in DA Market
   - If hour does not clear then hour is eligible to be dispatched in RT
**Schedule Selection and Hourly Updates**

**Schedule Selection:**

- After the schedules and corresponding offer data have been created, the participant will flag the appropriate schedule as Available or Not Available.
- There can be up to two schedules, but only one schedule can be made available for each day.
- There can either be one schedule or no schedule available for each day.
- Schedule Selection data is effective beginning the date shown.

**Hourly Updates:**

- Economic Min. MW: 0.4
- Economic Max. MW: 0.4
- Commit Status: Economic
- Economic Min. MW: 0.4
- Economic Max. MW: 0.4
- Commit Status: Economic

**Note:**

- Offers & Parameters
- DSR Hourly Updates
- DSR Clearing Results

**Date:** 02/01/2012

**Portfolio:**

- DSR:

**Search Parameters:**

- Date: (mm/dd/yyyy)

**Schedule Selection for:**

- Schedule Name: Primary
- Market Type: Balancing
- Available: Yes

**Hourly Updates for:**

- Hour Ending: 01
- Economic Min. MW: 0.4
- Economic Max. MW: 0.4
- Commit Status: Economic

**Get Report**
Schedule Selection and Hourly Updates

Economic Min MW, Max MW and Commit Status on the Hourly Updates can be changed up to 3 hours before the operating hour.

Hourly Updates - Commit Status

1. Economic
2. Unavailable

Commit Status = Economic:

- When Market Type = Day Ahead, then Economic refers to hourly availability in Day Ahead Market
- When Market Type = Balancing, then Economic refers to hourly availability in Real Time Dispatch
- Schedule Selection data is effective beginning the date shown
1. 0000 – 1200: Submit bids and offers

2. 1200 – 1600: Market is closed. The Day Ahead Market is being solved for tomorrow
   • 1600: Day Ahead Market results are posted

3. 1600 – 1800: Re-bidding period opens
   • 1800: Deadline for submitting Regulation and Synchronized Reserve Offers

4. 1800 – 0000: Market is closed
When the Market is closed, you cannot:

1. Add, delete or modify a Schedule.
2. Make hourly changes to Day-Ahead or Real Time Dispatch for the next day.
3. Create or modify Offers or DSR Parameters for today or the next day.
4. Change Schedule Market Types (Day Ahead, Balancing or Both) for today or the next day.

When the Market is closed, you can:

1. Make hourly changes to Real Time Dispatch for the current day, up 3 hours before the top of the operating hour.
2. Make hourly changes to Day Ahead or Real Time Dispatch for two days in the future through 6 days in the future.

The DA Market is closed from 12 Noon through 4PM, and 6PM through 12AM.
DSR Day Ahead Clearing Results

DSR Day Ahead Market Clearing Results

- DSR Clearing Results are effective for the date shown

Market Results For: 02/01/2012

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Total Portfolio MW

DSR Day Ahead Market Clearing Results

- DSR Clearing Results are effective for the date shown
Electronic Notification for Economic Dispatch Instructions
Electronic Notification

Requirement: It is a requirement for CSPs to receive Electronic Notification for Emergency DR, real-time dispatch and Synchronized Reserve Events.

Objective: To communicate with CSPs, via eLRS web service functions, their Load Management, RT dispatch and Synchronized Reserve instructions and confirm that the instructions have been received.

Events

- When PJM calls Load Management, RT Dispatch or Synchronized Reserve events, information needs to be pulled from eLRS by the CSP via periodic polling.
Polling requirements

- Polling is done by CSP (organization)
  - If CSP has more than one ORG with registrations, then they must poll each ORG separately
- At each CSP/ORG there should only be one userid performing the polling
  - That userid should have Manage All permission level in eLRS
- Polling shall be performed on a 1 minute frequency
- Acknowledge events upon receipt